IMPORTANT FOR FUTURE REFERENCE

Please complete this information and retain this manual for the life of the equipment:

Model #:_____

Serial #: _____

Date Purchased: _____

14R & 18 WKS KENTUCKY FRIED CHICKEN EQUIPPED WITH A FAST COOKING COMPUTER: EM99 or VC210

FRONT PANEL SUPPLIED BY PITCO

TROUBLESHOOTING MANUAL

PITCO FRIALATOR, INC
P.O. BOX 501
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SERVICE DEPT. 603-225-5688

L20-310 rev 0 (04/07)

SERVICE MANUAL
14R & 18 WKS
KENTUCKY FRIED CHICKEN

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- Burner Flow Drawing

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- Orifice Tips & Burner Pressure

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L20-310 REV 0 (04/07)

SECTION 1S SERVICE PROCEDURES

Parts can be identified from diagrams on Parts List page for each model.

1.1 TO REMOVE MAIN BURNER

a. Turn Unitrol knob to “OFF" position.
b. Loosen set screw in base of burner casting.
c. Unscrew and remove two hex head screws at top of burner.
d. Unscrew and remove air collar from burner.
e. Lift burner up to clear top of burner fitting and remove from fryer.
f. Reverse procedure to remount burner.

1.2 TO CHANGE MAIN BURNER ORIFICE

a. Follow procedure in Section 1.1.
b. After burner has been removed, unscrew orifice with 3/8” wrench.
c. Screw in new orifice – tighten gas tight.
d. Remount burner and air collar.

1.3 TO REPLACE HEAT TUBE BAFFLES

a. Remove main burners: follow procedure in Section 1.1.a. through e.
b. Baffles are fastened to the inside of the heat tube by a small tack weld on the right hand front baffle support. Break leg away from weld with a chisel or solid steel bar.
c. Remove old baffles and insert new ones in tubes in original position.
d. Remount main burners.

1.4 TO REMOVE PILOT BURNER

a. Follow procedure in Section 1.1 and remove main burner to the right of the pilot burner.
b. Unscrew and remove tubing nut from pilot tubing connection on Unitrol.
c. Unscrew and remove thermopile or thermocouple from connection on Unitrol.
d. Unscrew and remove the two screws holding the pilot to the bracket on the fry tank and lift the entire pilot assembly out of the fryer.

1.5 TO CHANGE PILOT BURNER ORIFICE

a. Follow procedure in 1.4.
b. Unscrew tubing nut in fitting in base of pilot burner.
c. Unscrew fitting in the base of pilot burner and withdraw orifice from inside the fitting.
d. Insert new orifice and reverse procedure to re-assemble.
e. Tighten all screws and connections and test for gas leaks.

SECTION 1S SERVICE PROCEDURES (Cont'd)

1.6 TO REPLACE THERMOPILE OR THERMOCOUPLE

a. Follow procedure in 1.4.
b. Unscrew and remove thermopile or thermocouple from pilot burner and bracket.
c. Replace with new thermopile or thermocouple.
d. Reverse procedure to re-assemble.
e. Tighten all screws and connections and test for gas leaks.

1.7 TO ADJUST PILOT FLAME

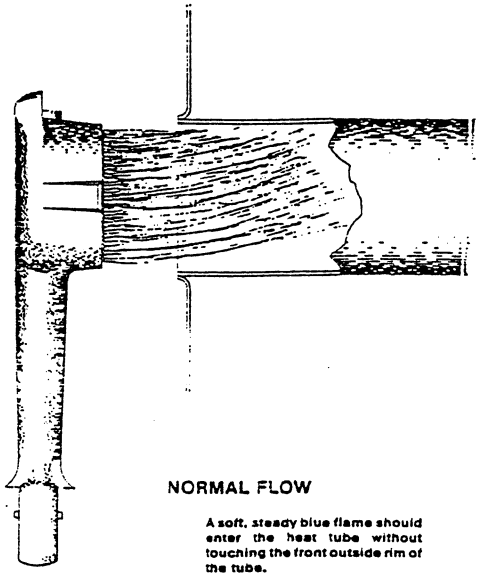
a. Make this adjustment with pilot burner lit.
b. Remove screw cap underneath pilot supply tubing connection to Unitrol valve.
c. Insert long handled screwdriver with 1/8" wide blade in adjusting screw slot inside this pilot supply fitting.
d. Turn adjusting screw clockwise to decrease or counterclockwise to increase pilot flame. Watch size of pilot flame while turning adjusting screw.

CAUTION DO NOT REMOVE ADJUSTING SCREW

e. Replace screw cap when desired flame size is obtained.
f. Replace pilot orifice if desired flame cannot be obtained by adjustment. See procedure 1.5.

1.8 TO REPLACE LIMIT CONTROL

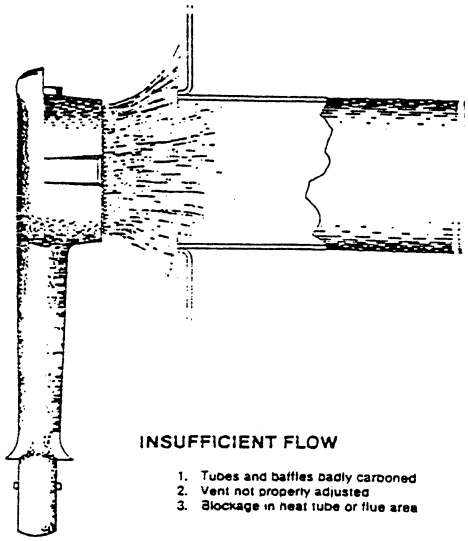
a. Turn Unitrol knob to "OFF."
b. Drain all shortening from fry tank. Remove tube screen.
c. Unscrew and remove the two screws in the limit bulb clamp on the heat tube inside the fry tank.
d. Take sensing bulb out of the clamp and straighten the capillary tubing.
e. Remove the two burners that are in front of the capillary connector fitting on the bottom of the fry pot. See procedure 1.1.
f. Unscrew small hex nut in connector fitting of control to be replaced.
g. Unscrew large connector nut and withdraw capillary and bulb from fry tank.
h. Remove the two wires off the limit control terminals.
i. Unscrew and remove the two mounting screws in the limit control bracket and remove the limit control from the fryer.
j. Unpack the new limit control and carefully unroll the capillary tubing and straighten it out.
k. Install the new limit control by reversing the procedure. **BE CAREFUL NOT TO BEND, KINK OR TWIST THE CAPILLARY TUBING SHARPLY. THIS WILL DESTROY THE LIMIT CONTROL.**



NORMAL FLOW

A soft, steady blue flame should enter the heat tube without touching the front outside rim of the tube.

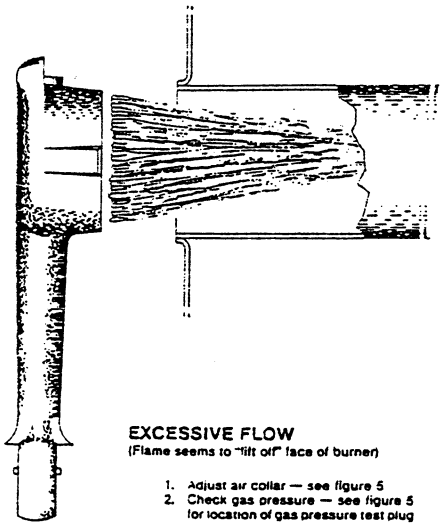
Figure 1



INSUFFICIENT FLOW

1. Tubes and baffles badly carboned
2. Vent not properly adjusted
3. Blockage in heat tube or flue area

Figure 2

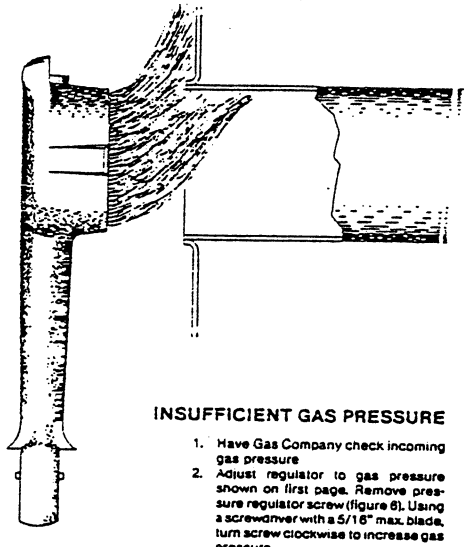


EXCESSIVE FLOW

(Flame seems to "lift off" face of burner)

1. Adjust air collar — see figure 5
2. Check gas pressure — see figure 5 for location of gas pressure test plug

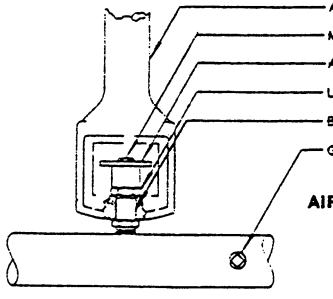
Figure 3



INSUFFICIENT GAS PRESSURE

1. Have Gas Company check incoming gas pressure
2. Adjust regulator to gas pressure shown on first page. Remove pressure regulator screw (figure 6). Using a screwdriver with a 5/16" max. blade, turn screw clockwise to increase gas pressure.

Figure 4



AIR COLLAR ADJUSTMENT

Turn air collar and locknut down as far as possible. If flame lifts off the face of the burner, turn the air collar up until the best flame is obtained. Then tighten the locknut against the bottom of the air collar.

Figure 5

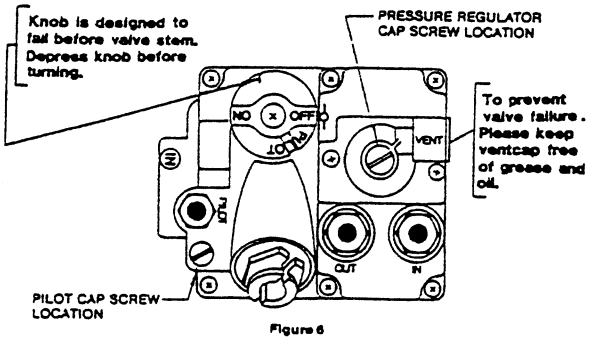
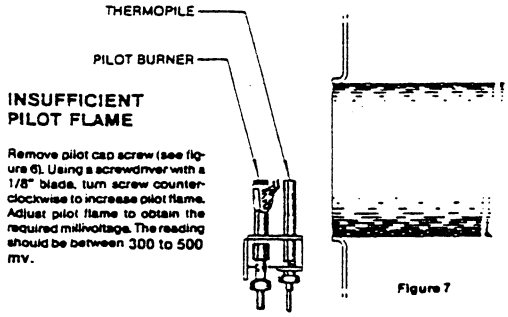


Figure 6

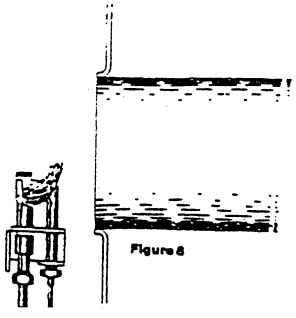
UNITROL COMBINATION GAS VALVE



INSUFFICIENT PILOT FLAME

Remove pilot cap screw (see figure 6). Using a screwdriver with a 1/8" blade, turn screw counterclockwise to increase pilot flame. Adjust pilot flame to obtain the required millivoltage. The reading should be between 300 to 500 mv.

Figure 7



NORMAL PILOT FLAME

As stated in figure 7, the normal pilot flame will generate a millivoltage of 300 to 500 mv.

Figure 8

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SECTION 2S TROUBLESHOOTING CHART

TROUBLE	POSSIBLE CAUSE	REMEDY
Pilot will light but Unitrol pilot gas valve will not hold open automatically.	1 Pilot thermopile or thermocouple not hot enough to generate required millivoltage.	1 Hold Unitrol knob (in **PILOT** position) depressed for 1 minute or longer. Make sure all air has been purged from gas line.
	2 Loose wire connection in millivoltage circuit.	2 Check all wire connections.
	3 Thermopile or thermocouple producing insufficient millivoltage.	3 Check voltage at Unitrol with millivoltmeter, holding pilot flame on manually as in No. 1 above. Reading should be 500 +/-50 mv. for thermopile. Reading should be between 25 and 35 mv. for thermocouple.
	4 High limit control may have cut out.	4 Check continuity across limit control terminals with meter. If limit control has cut off, check at what temperature it cut off.
	5 Pilot flame too small.	5 Check millivoltage as above; increase size of flame with Unitrol pilot adjusting screw.
	6 Pilot flame burning yellow.	6 Remove and clean pilot and thermopile or thermocouple; decrease size of flame with Unitrol pilot adjusting screw if over 450 mv. Reading should be 500 +/-50 mv. for thermopile. Reading should be between 25 and 35 mv. for thermocouple.
	7 Draft may be pulling flame off thermopile or thermocouple.	7 Eliminate the draft.
	8 Gas pressure too low.	8 Pressure at burner manifold should be 4.0" w.c. for natural gas and 10.0" w.c. for propane with all equipment on line in full operation. If this cannot be maintained, consult gas company.

SECTION 2S TROUBLESHOOTING CHART (Cont'd)

TROUBLE	POSSIBLE CAUSE	REMEDY
Pilot will light but Unitrol pilot gas valve will not hold open automatically.	9 Defective thermopile or thermocouple	9 Replace thermopile or thermocouple
	10 Defective thermopile or thermocouple	10 Replace magnet
Pilot flame lit but burners will not light.	1 Unitrol valve handle not turned to ON.	1 Turn handle counter clockwise as far as it will go.
	2 Float switch bulb off or stuck down.	2 Install float switch bulb and new clip.
	3 Supply cord may not be plugged in or switch may not be turned on.	3 Check electric supply circuit
	4 Defective probe.	4 Replace probe.
	5 Defective computer.	5 Replace Computer.
	6 Defective Unitrol.	6 Replace Unitrol.
Pilot flame and main burners cut off while cooking.	1 Hi-Limit tripped	1 Reset
Fryer temperature recovery too slow.	1 Dirty burners.	1 Clean.
	2 Low gas pressure.	2 Minimum operating pressure: Natural Gas- 4.0" w.c.; Propane Gas- 10.0" w.c.
	3 Incorrect burner orifices.	3 Call factory to learn proper sizes.
	4 Carbon build-up on heat tubes.	4 Clean fry tank and tubes.
	5 Baffles in heat tubes may be burned out.	5 Replace baffles.
Pilot flame is yellow.	1 Pilot flame too large.	1 Adjust Unitrol pilot adjustment screw.
	2 Carbon build-up on thermopile or thermocouple.	2 Remove and clean.

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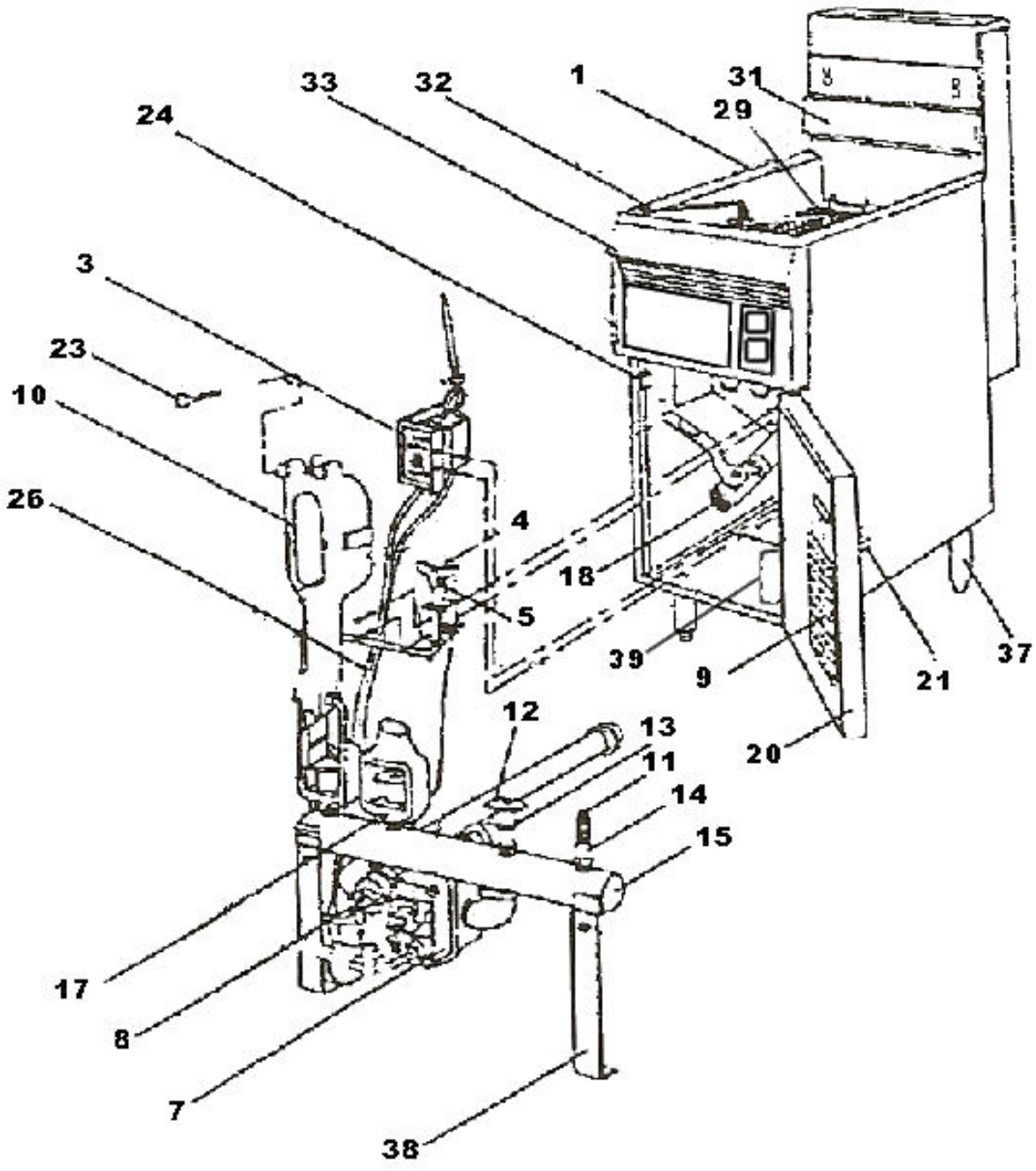
SECTION 2S TROUBLESHOOTING CHART

TROUBLE	POSSIBLE CAUSE	REMEDY
Burner flames will not enter heat tubes.	1 Downdraft on fryer flue opening, or vent not turned on.	1 Protect flue opening from downdrafts, breezes or air flows from blowers. a. Turn Vent on.
	2 Orifices may be incorrect size.	2 Call factory to learn proper sizes.
	3 Gas pressure too high/low.	3 On natural gas adjust Unitrol pressure regulator to 4.0" w.c operating pressure. On propane gas have gas supplier adjust tank pressure to provide 10.0" w.c. operating pressure at the fryer. (See Orifice and Burner pressure chart)
	4 Burners out of alignment.	4 Loosen burner mounting screws and line up burners.
Main burners will not shut off automatically.	1 Clogged vent cap on Unitrol.	1 Remove and clean cap.
	2 Defective Unitrol.	2 Replace Unitrol.
Main burner flames are yellow.	1 Improper air collar adjustment	1 Remove and clean cap.
	2 Main burners dirty.	2 Remove burners and clean.
	3 Improper gas pressure.	3 On natural gas adjust Unitrol pressure regulator to 4.0" w.c operating pressure. On propane gas have gas supplier adjust tank pressure to provide 10.0" w.c. operating pressure at the fryer. (See Orifice and Burner pressure chart)
	4 Orifices are too large.	4 Call factory to learn proper sizes.
Howling or screeching noise when burners are on.	1 Gas pressure too high.	1 Adjust pressure regulator.
	2 Dirt or burr on burner orifice.	2 Clean orifice or replace.

NOTES

SECTION 3S EXPLODED PARTS LIST MODEL 14R & 18 WKS



SECTION 3S EXPLODED PARTS LIST MODEL 14R & 18 WKS

ITEM #	PART NUMBER	ITEM DESCRIPTION
1	B3309902	Stainless Steel Fat Container (14R)
	B3307201	Stainless Steel Fat Container (18)
3	P5047210	Hi limit Control
4	P5047541	Thermopile
	P5047540	Thermocouple
5	P6071450	Pilot Burner Natural
	P6071449	Pilot Burner Propane
6	B6779850	Unitrol Limit Wire
7	P5045650	Unitrol Natural 120V (Thermopile)
	P5045652	Unitrol Propane 120V (Thermopile)
	P5045638	Unitrol Natural 24V (Thermopile)
	P5045639	Unitrol Propane 24V (Thermopile)
	PP10777	Unitrol Natural 24V CE (Thermocouple)
	PP10778	Unitrol Propane 24V CE (Thermocouple)
8	P6071269	Unitrol Knob
9	Contact Factory	Data Plate
10	P6071051	Main Burners
11	P6071338	Burner Orifices Natural (14R)
	P6071309	Burner Orifices Propane (14R)
	P6071339	Burner Orifices Natural (18)
	P6071353	Burner Orifices Propane (18)
	See Orifice Chart	See Section 3S Burner Orifices chart (CE)
12	A8001001	Air Collar
14	A8001101	Burner Fittings
15	B8005601	Manifold
17	PP10025	Main Burner Bolt
18	PP10368	Drain Valve 1 1/4"
20	B2301105	Door Assembly RH (14R)
	B2301106	Door Assembly RH (18)
21	PP11006	Door Handle
22	P6071496	Snap Buttons
23	PP11261	Burner Mounting Bolts
24	P6071300	Magnetic Door Catch
26	A1400202	Probe and Limit Bulb Clamp
27	A3301001	Clean Out Rod
28	B1000601	Heat Tube Baffles (14R)
	B1000801	Heat Tube Baffles (18)
29	A4500201	Tube Screen (14R)
	P6072186	Tube Screen (18)
30	A2510101	Drain Extension
31	A1100108	Basket Hanger (14R)
	A1100110	Basket Hanger (18)
32	P6072145	Basket (14R)
33	Front Bezel Assembly	See Section 4S Front Bezel Assembly
37	PP10810	7" Caster-Swivel Non-Locking-Rear
	B3900408	7" Leg-Front
	B3901401	8" Caster/Leg Set-Swivel Non-Locking-Rear
38	A8000801	Manifold Bracket
39	Entrance Box Assembly	See Section 5S Entrance Box

SECTION 3S EXPLODED PARTS LIST MODEL 14R & 18 WKS
ORIFICE TIPS & BURNER PRESSURE

14R Natural	
GAS CATEGORY	ORIFICE TIP SIZE (mm)
I_{2H}, I2E	2.44
I_{2L}	2.79
I_{2E+}, I_{2ESI}	1.17(4)
I_{2ELL}	2.44/2.79

14R Propane			
GAS CATEGORY	Supply Pressure (mbars)	Governor on Gas Valve?	ORIFICE TIP SIZE (mm)
I_{3P}	37	Yes	1.51
I_{3P}	50	Yes	1.51
I_{3P}	37	No	1.4
I_{3P}	50	No	1.32
$I_{3B/P}$	50	No	1.25

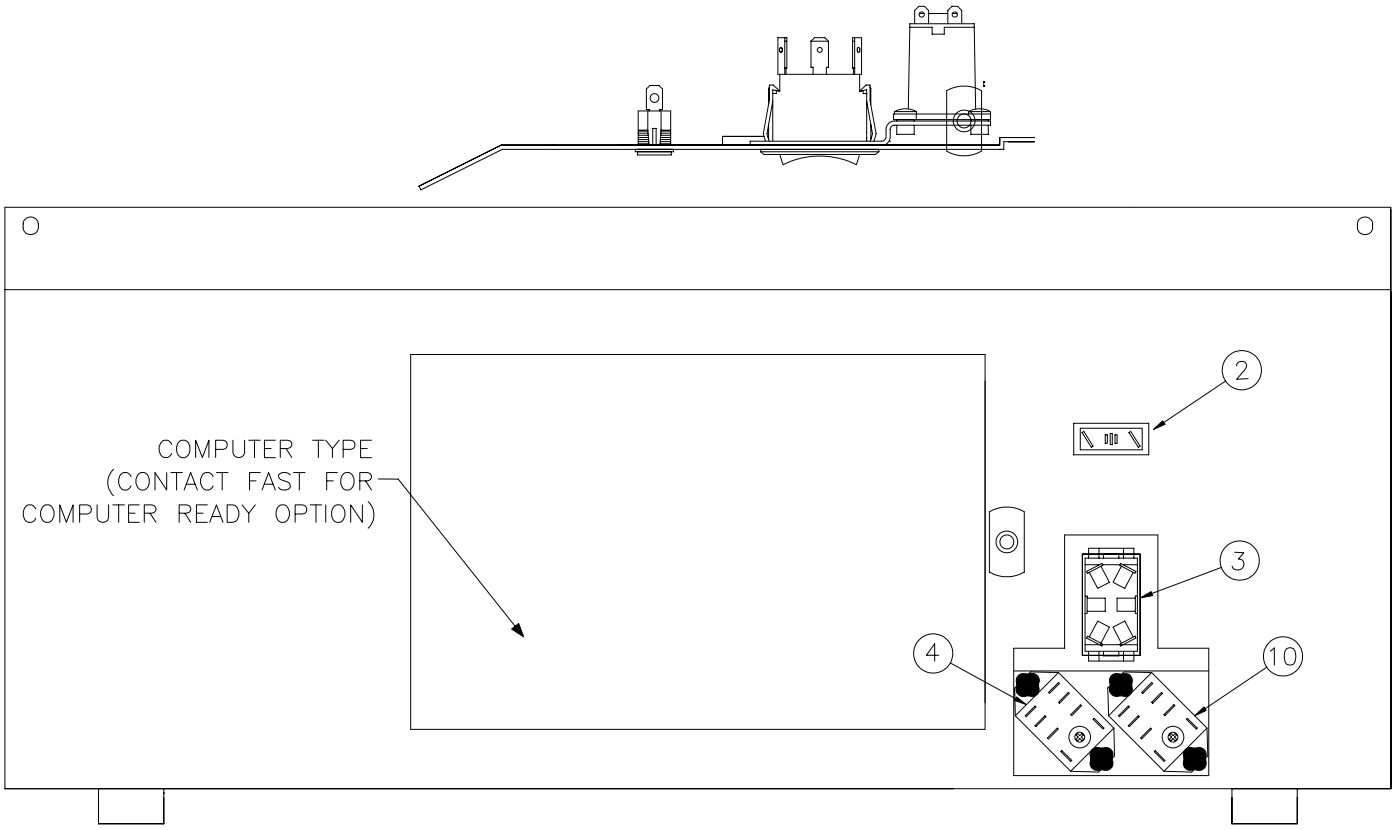
18 Natural	
GAS CATEGORY	ORIFICE TIP SIZE (mm)
I_{2H}, I_{2E}, I_{2E+}, I_{2ESI}	2.38
I_{2L}	2.58
I_{2ELL}	2.38/2.58

18 Propane			
GAS CATEGORY	Supply Pressure (mbars)	Governor on Gas Valve?	ORIFICE TIP SIZE (mm)
I_{3P}	50	No	1.15
I_{3P}	37	No	1.25

Domestic/International Operational Information				
MODEL	GAS TYPE	ORIFICE TIP SIZE	BURNER PRESSURE (in. WC)	MIN. INLET PRESSURE (in WC)
14R	Natural	#38	4.0	7.0
	Propane	0.0625"	10.0	12.0
18	Natural	39	4.0	7.0
	Propane	53	10.0	12.0

NOTES

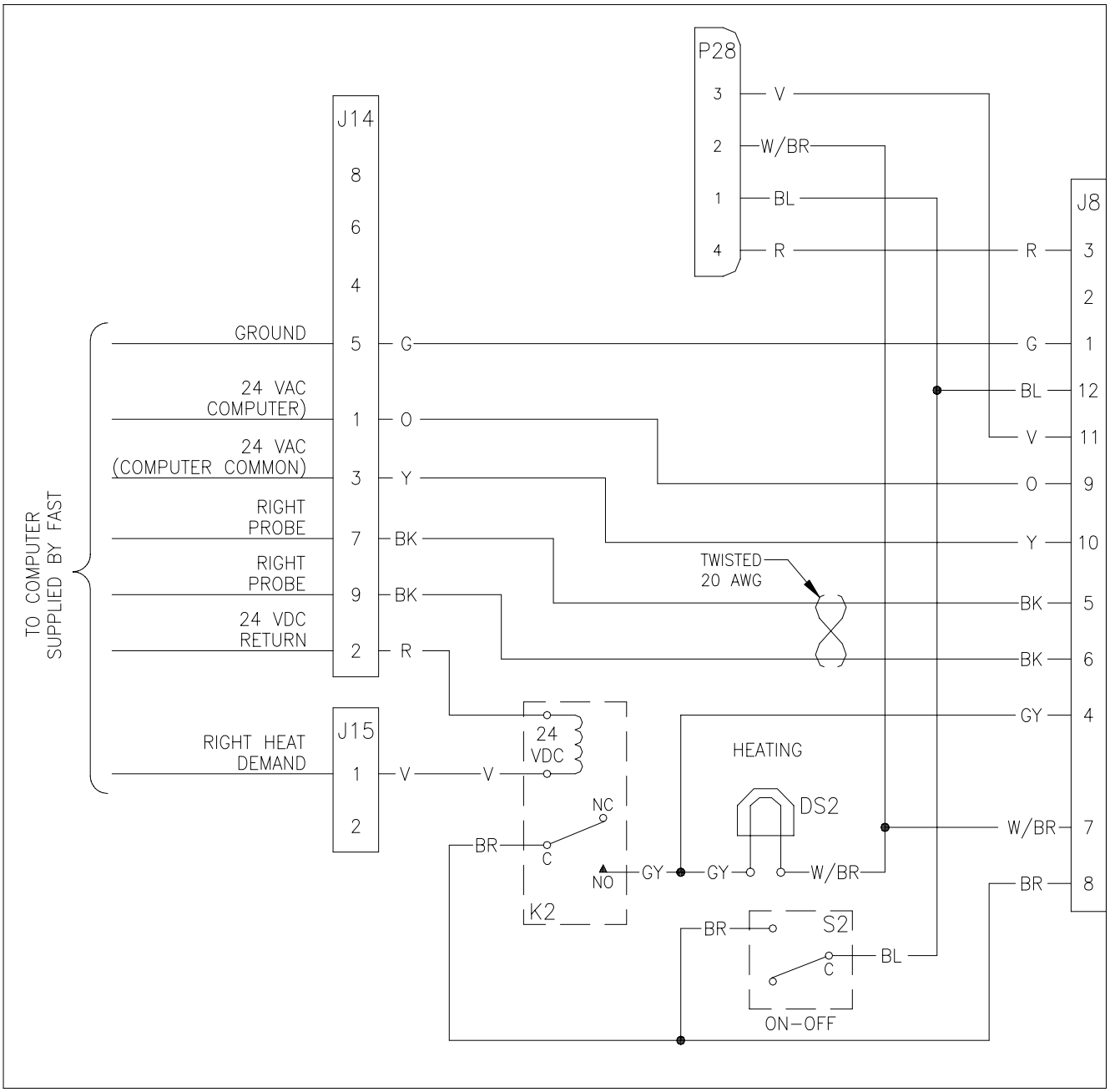
SECTION 4S FRONT PANEL BEZEL ASSEMBLY MODEL 14R & 18 WKS



Back View of Front Panel Bezel Assembly

ITEM #	Schematic Symbol	Part Number	ITEM DESCRIPTION
See Schematic		700131	Schematic
2	DS2	P5045044	Lamp
3	S2	PP10093	Switch On/Off
	S3	PP10559	Switch Start/On/Off DVI (drain switch)
4	K2	PP11124	Relay 24V SPDT DC
10	K3	P5046686	Relay 24V DPDT AC
Harness	Not Shown	B6711702	Harness
		B6711703	Harness DVI (drain switch)
Computer Type	Not Shown	Contact FAST for Replacement	Fast Computer -EM99
			Fast Computer -VC210 KFC

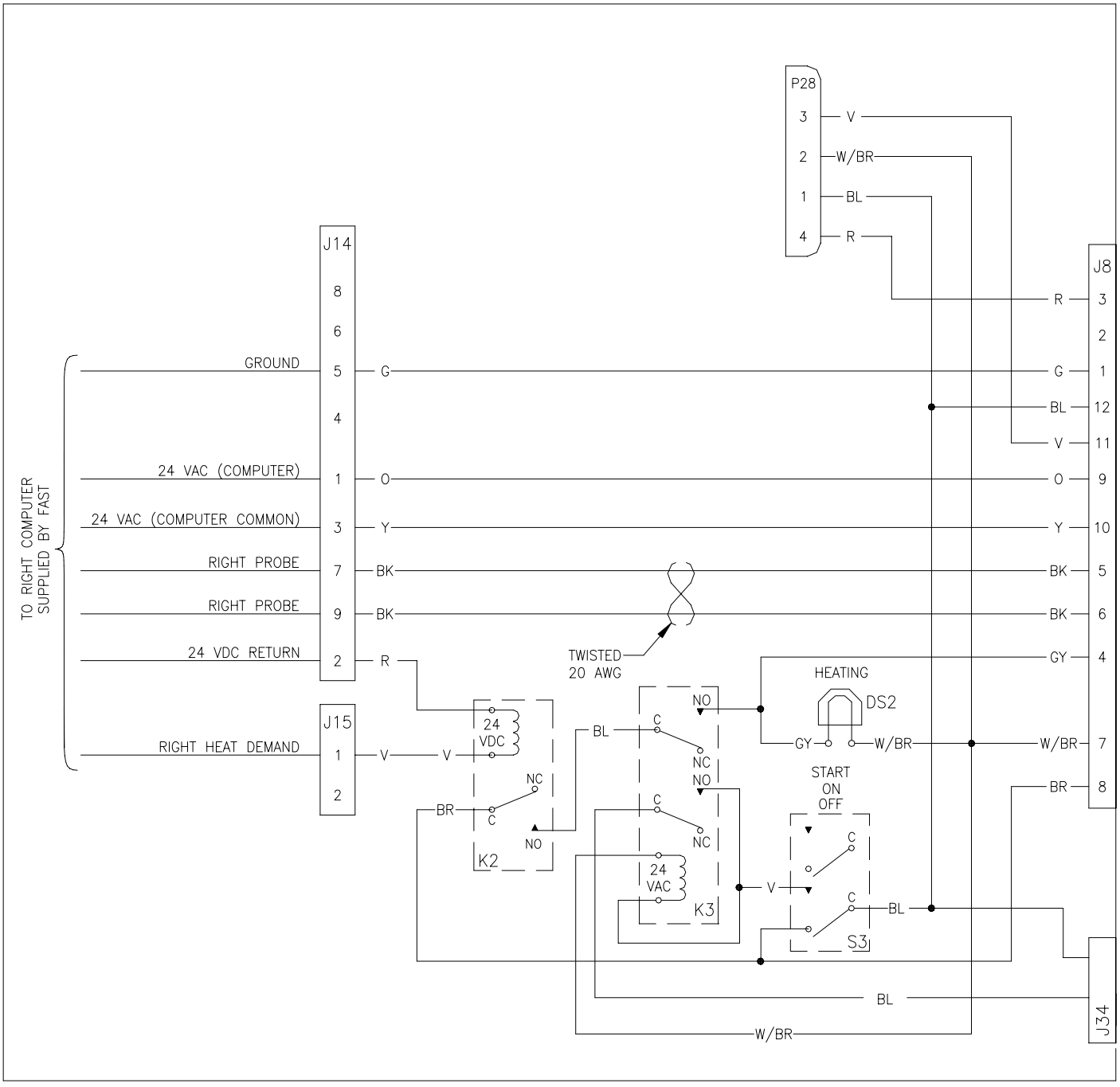
SECTION 4S FRONT PANEL BEZEL SCHEMATIC MODEL 14R & 18 WKS



FRONT PANEL – STANDARD

FRONT PANEL BY PITCO OF SCHEMATIC 700131

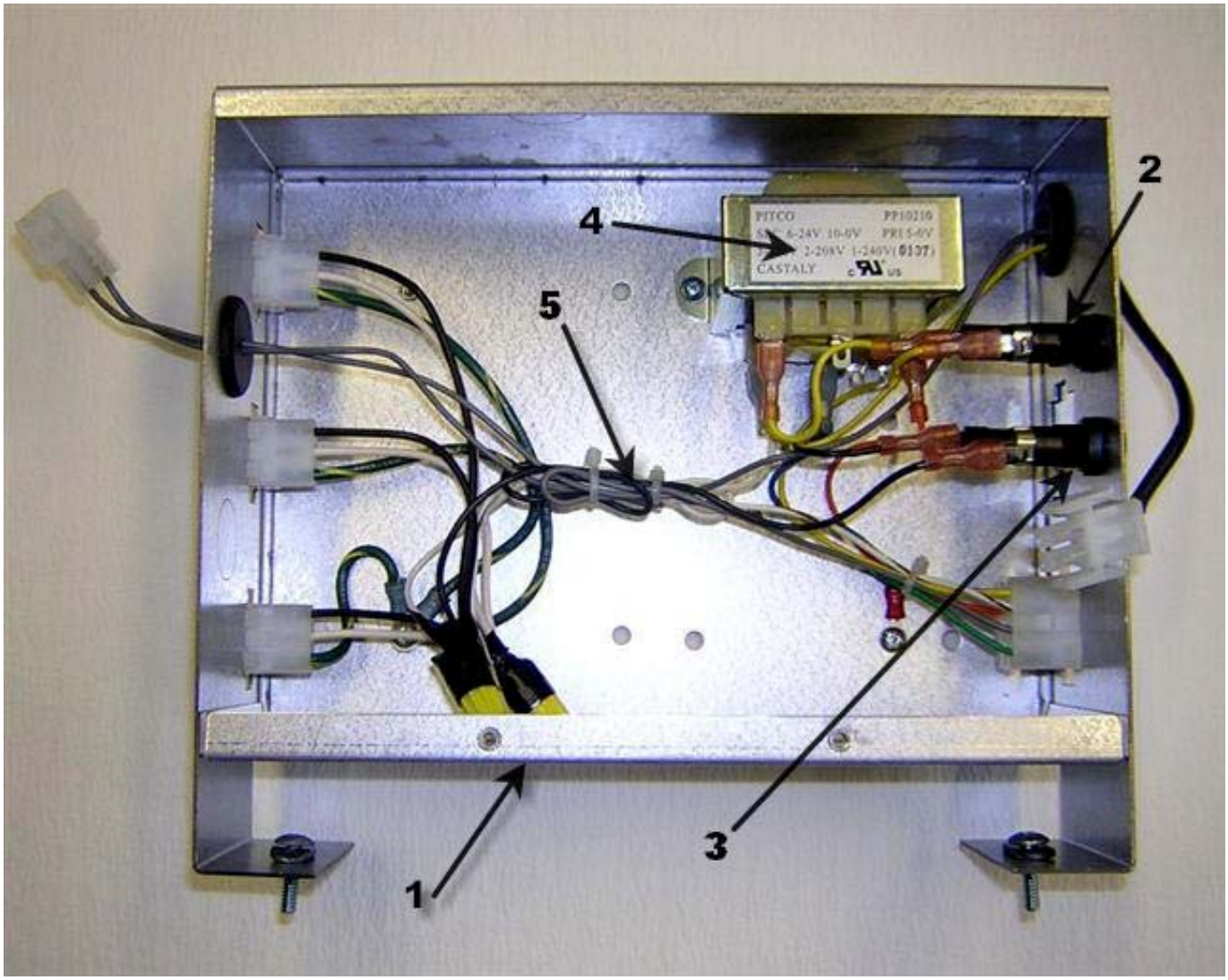
SECTION 4S FRONT PANEL BEZEL SCHEMATIC MODEL 14R & 18 WKS



FRONT PANEL – DRAIN SWITCH OPTION

FRONT PANEL BY PITCO OF SCHEMATIC 700131

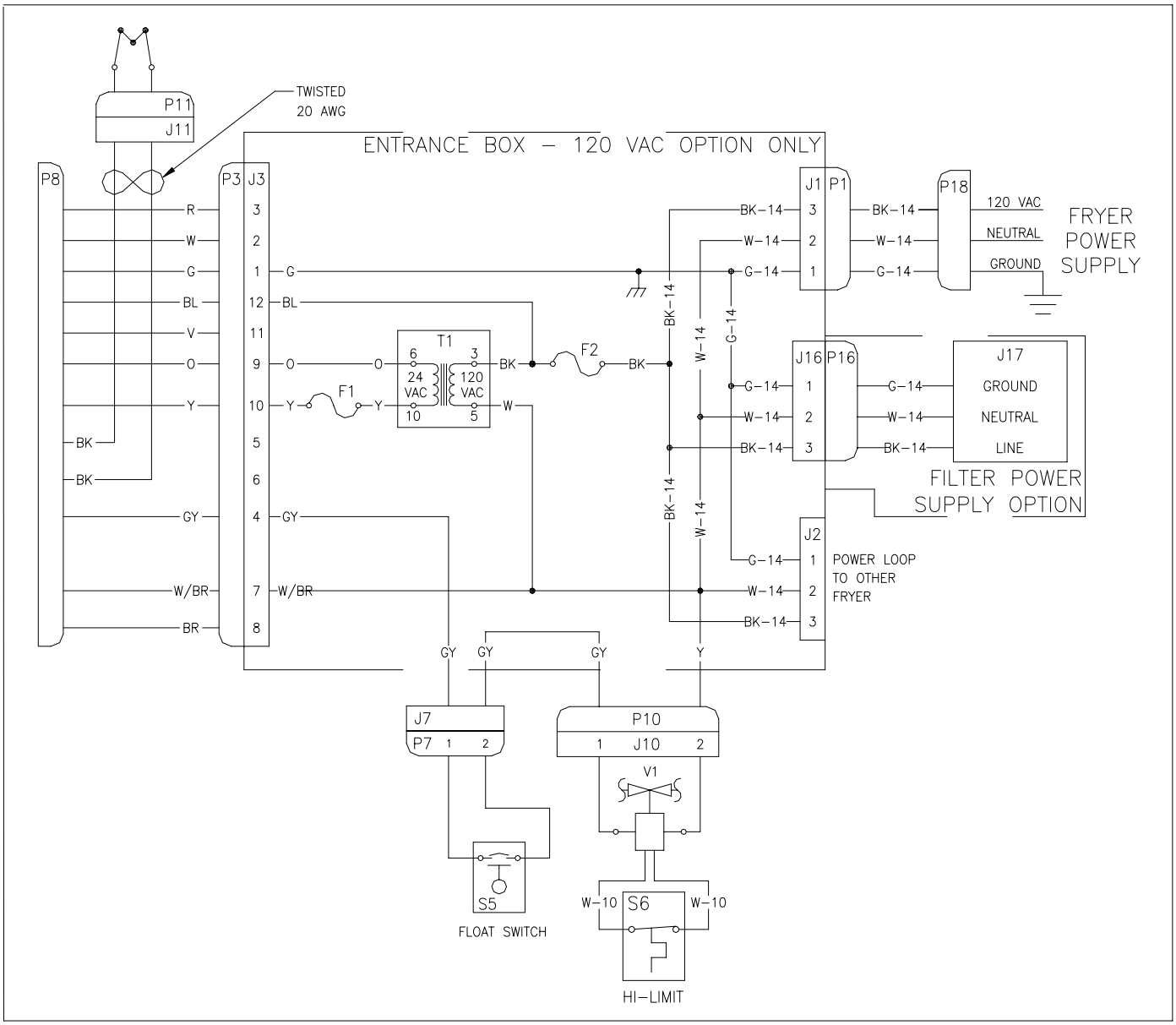
SECTION 5S ENTRANCE BOX ASSEMBLY MODEL 14R & 18 WKS



Item Number	Qty.	Part Number	Description
1	1	B2904502	Entrance Box 115V
		B2904504	Entrance Box 220-240V
2	1	P5045794	Fuseholder
	1	PP10122	1 Amp Fuse - 115V
		P5045717	2 Amp Fuse - 220-240V
3 (See Note 1)	1	P5045794	Fuseholder
	1	PP10122	1 Amp Fuse - 115V
4	1	PP10210	40VA Transformer
5	1	B6713901	Wire Harness 115V
		B6713902	Wire Harness 220-240V
NOTE 1: ITEM 3 NOT USED ON 220-240V MODELS			

SECTION 5S ENTRANCE BOX ASSEMBLY MODEL 14R & 18 WKS

ENTRANCE BOX SCHEMATIC OF 700131



SECTION 5S ENTRANCE BOX ASSEMBLY MODEL 14R & 18 WKS

ENTRANCE BOX SCHEMATIC OF 700131